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# Permit Fact Sheet

## 1 General Information

Permit Number:	WI-0002810-07-0
Permittee Name:	Packaging Corporation of America
Address:	N9090 County Road E
City/State/Zip:	Tomahawk, WI 54487
Discharge Location:	Lake Mohawksin and the Pride Dam
Receiving Water:	Wisconsin River (Segment A)
Stream Flow ( $Q_{7,10}$ ):	386 cfs
Stream Classification:	Warm Water Sport Fish

## 2 Facility Description

The pulping used at the mill is a non-sulfur semi-chemical process, which uses sodium carbonate as the major pulping chemical (semi-chemical subcategory sodium based). Pulp is made from hardwood logs (70%), and recycled fiber from post manufacture and post consumer (30%). From this pulp, PCA produces the brown paper, which serves as the corrugated center medium in container board. Bleaching and fillers are not used. The average daily paper production of corrugating medium is 1550 tons/day.

Treated process wastewater discharges from Outfall 003 at an average flow of 5.9 MGD into the turbine intake of the Pride Dam. The process wastewater sources consists of: (a) mill effluent at 4100 gpm from log debarking, pulp mill, paper mill, boiler room, and vacuum water, (b) evaporator condensate at 100 gpm, (c) leachate from PCA's landfill at 10,000 gpd, (d) sanitary wastewater at 5000 gpd, (e) storm water runoff collected by the mill's combined sewer system, and (f) process wastewater from the Colby Box Plant that is trucked in at 6700 gpd. All water at the mill for paper making is obtained from the Wisconsin River. Leachate from municipal landfills in Lincoln and Oneida Counties was previously accepted, but PCA no longer accepts this waste.

Noncontact cooling water discharges from Outfall 004 at an average flow of 4.2 MGD into Lake Mohawksin. The noncontact cooling water sources are the power house, pulp mill, and paper mill. Water treatment additives are used to prevent biofouling and corrosion control. Treatment of the cooling water is unnecessary so it discharges into Lake Mohawksin untreated. The volume of noncontact cooling water discharged between October and April is reduced or sometimes stops, because of the ability to recycle the cooler river water during the winter.

Sludge is allowed to accumulate in the large anaerobic basin. The aerobic portion isn't normally operated in an activated sludge mode, although it can be operated that way. Primary clarifier sludge and anaerobic sludge are blended together at a ratio of 80% and 20% respectively. The anaerobic portion of the blend may increase to 40% when the anaerobic basin sludge inventory needs to be reduced. All of the activated sludge that settles in the secondary clarifiers is wasted to either the primary clarifiers or the anaerobic basin. None of the activated sludge is currently returned to the aeration basins. Sludge is dewatered using gravity belt pre-thickeners and screw presses producing 30 tons (dry weight) per day. A land application management plan regulates the details of the sludge disposal. The sludge is exceptional in quality and complies with high quality and Class A requirements. The sludge is either land applied, or it can be public distributed for commercial use to processors who may use it as an ingredient in mulch or soil products, and it's also available to individuals that can be hauled in bulk to private sites or picked up at PCA.

Since 1995, PCA has operated a two-stage biological wastewater treatment system, consisting of 4 processes:

- Primary clarification in two clarifiers operated in parallel.
- Anaerobic treatment in a four cell covered basin.
- Aerobic treatment in a two cell basin.
- Secondary clarification in two clarifiers operated in parallel.

Sample Point Designation		
Sample Point Number	Discharge Flow, Units, and Averaging Period	Sample Point Location, Waste Type/sample Contents and Treatment Description (as applicable)
002	N/A	Combined Outfalls 003 and 004 for the purpose of determining compliance with phosphorus limit.
003	5.5 MGD, 1/1999 through 5/3003	Wastewater treatment system effluent discharge to the Pride Dam.
004	4.0 MGD, 1/1999 through 5/3003	Noncontact cooling water discharge to Lake Mohawksin.
010	9000 dry tons per year (estimated)	Dewatered sludge cake is available for public distribution, and is hauled to private lands or is used commercially as a soil amendment. The sludge is regulated as an "exceptional like quality" according to ch. NR 204, Wis. Adm. Code. Land applied sludge may be used for silviculture or agriculture. Typical sludge blend is 80% primary clarifier and 20% anaerobic basin.
013	New Outfall. Flow estimated at 1,000,000 gallons per year	Land application of liquid sludge low total solids. This may occur during times when there is a treatment system upset that necessitates emergency removal of liquid sludge from the secondary clarifiers or anaerobic basins.
601	N/A	Dissolved oxygen monitoring at Grandmother Dam. If minimum DO levels are met, the discharge may exceed the wasteload allocation.
602	N/A	Previous days data required for: (1) daily average flow from continuous river flow monitoring at the Pride Dam, and (2) daily average temperature from continuous river temperature monitoring at Grandmother Dam.
603	N/A	Wisconsin River water intake monitoring for background mercury concentration.

Sample Point Designation For Groundwater Monitoring Systems			
System	Sample Point Number	Well Name	Comments
Old Lagoon NR 213 Evaluation	804	Well 4A	Located south of the wastewater treatment system on north bank of the Spirit River
Old Lagoon NR 213 Evaluation	806	Well 6A	Located southwest of the wastewater treatment system on north bank of the Spirit River
Old Lagoon NR 213 Evaluation	810	Well 8	Background well located east of the final clarifiers near the Pride Dam. This well data used to calculate preventive action limits.
Old Lagoon NR 213 Evaluation	821	Well 14	Located southwest of the wastewater treatment system on north bank of the Spirit River.
Old Lagoon NR 213 Evaluation	822	Well 14A	Located southwest of the wastewater treatment system on north bank of the Spirit River.

### 3 Surface Water - Proposed Monitoring and Limitations

#### 3.1 Sample Point Number: 002- COMBINED OUTFALLS 003 & 004

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Daily	Total Daily	Refer to Footnote 1.2.1.1.
Phosphorus, Total	Rolling 12 Month Avg	2.6 mg/L	Monthly	Calculated	Refer to Footnotes 1.2.1.1 and 1.2.1.2.

##### 3.1.1 Changes from Previous Permit

New outfall identified in the permit for determining compliance with the phosphorus limit that is applicable to the combined discharges of process wastewater and cooling water. The alternative phosphorus limit of 2.6 mg/L replaces the previous permit's limits of 4.0 mg/L, and 3.5 mg/L in permit modification of May 7, 1999. Two footnotes explain the phosphorus limit and the reporting requirements for flow and the phosphorus concentration

##### 3.1.2 Explanation of Limits and Monitoring Requirements

Refer to the attached March 20, 2003 memo approving the new alternative limit.

#### 3.2 Sample Point Number: 003- WASTEWATER TREATMENT EFFLUENT

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Daily	Total Daily	
BOD5, Total		mg/L	Daily	24-Hr Comp	Refer to Footnote 1.2.2.6.
BOD5, Total	Daily Max	18,152 lbs/day	Daily	Calculated	Wasteload allocation limits and monitoring requirements apply from May through October. Refer to Footnotes 1.2.4.1 and 1.2.5.1.
BOD5, Total	Monthly Avg	9,076 lbs/day	Daily	Calculated	Wasteload allocation limits and monitoring requirements apply from May through October. Refer to Footnotes 1.2.4.1 and 1.2.5.1.
Suspended Solids, Total		mg/L	Daily	24-Hr Comp	
Suspended Solids, Total	Daily Max	26,302 lbs/day	Daily	Calculated	

Suspended Solids, Total	Monthly Avg	13,151 lbs/day	Daily	Calculated	
Nitrogen, Total Kjeldahl		mg/L	Monthly	24-Hr Comp	
Nitrogen, Nitrite + Nitrate Total		mg/L	Monthly	24-Hr Comp	
Nitrogen, Ammonia (NH <sub>3</sub> -N) Total		mg/L	Monthly	24-Hr Comp	
Phosphorus, Total		mg/L	Weekly	24-Hr Comp	
Temperature		deg C	Daily	Continuous	
Copper, Total Recoverable		ug/L	Monthly	24-Hr Comp	
Mercury, Total Recoverable		ng/L	Monthly	Grab	Refer to Footnotes 1.2.2.1 and 1.2.2.2.
Acute WET		rTUa	Quarterly	24-Hr Flow Prop Comp	The permittee shall conduct an acute WET test during each of the calendar quarters specified in Footnote 1.2.2.4.
Chronic WET		rTUC	Quarterly	24-Hr Flow Prop Comp	The permittee shall conduct a chronic WET test during each of the calendar quarters specified in Footnote 1.2.2.4.
pH (Continuous)			Daily	Continuous	See “Continuous pH Monitoring” in Footnote 1.2.2.3 below for categorical pH limits and allowed excursions.

### 3.2.1 Changes from Previous Permit

Monitoring was added for copper, consistent with the May 7, 1999 permit modification, which allowed the discharge of the Colby Boxplant wastewater into PCA’s wastewater treatment system. The Colby Boxplant wastewater is high in copper, so monitoring of PCA’s effluent is necessary to monitor trends to assure concentrations are below levels of concern. The copper concentration in PCA’s effluent is low enough, and because of the zone of initial dilution with the dam discharge location, a copper limit isn’t triggered. A footnote states copper monitoring may be discontinued if acceptance of the Colby Boxplant wastewater is discontinued, or if the blue ink (the source of the copper) is replaced with an environmentally friendly ink.

The BOD<sub>5</sub> monitoring frequency may be reduced outside the BOD<sub>5</sub> wasteload allocation period. This is consistent with permits for other mills. A footnote states the BOD<sub>5</sub> monitoring frequency is daily May 1<sup>st</sup> through October 31<sup>st</sup>, but is 5 times weekly November 1<sup>st</sup> through April 30<sup>th</sup>.

Monitoring was added for mercury, consistent with the new mercury rules added to s. NR 106.145, Wis. Adm. Code (effective November 1, 2002). For pulp and paper mills the monitoring frequency is monthly, but it is reduced to quarterly after a minimum of 12 representative samples are collected.

### 3.2.2 Explanation of Limits and Monitoring Requirements

#### Water Quality Based Limits and WET Requirements and Disinfection (if applicable)

Refer to the attached March 11, 2003 memo containing the water quality based effluent limits.

#### Categorical Limits

No changes have been made to the current categorical limits. The categorical limits for pulp and paper mills are contained in ch. NR 284, Wis. Adm. Code for BOD<sub>5</sub>, TSS, and pH apply to the discharge. The best practicable technology (BPT) for the semi-chemical sodium based subcategory has the following effluent limitations per ton of product: 17.4 pounds BOD<sub>5</sub> daily maximum, 8.7 pounds BOD<sub>5</sub> monthly average, 22 pounds TSS daily maximum, 11 pounds TSS monthly average, and pH 6.0 to 9.0. PCA has not requested or demonstrated a need for increasing the categorical limits, although increased production has occurred. An increase in the BOD<sub>5</sub> and TSS limits would require compliance with the antidegradation procedures in ch. NR 207, Wis. Adm. Code.

### 3.3 Sample Point Number: 004- NONCONTACT COOLING WATER

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Flow Rate		MGD	Daily	Total Daily	
Temperature	Daily Max	60 deg C	Daily	Continuous	
pH Field	Daily Max	9.0 su	Daily	Grab	
pH Field	Daily Min	6.0 su	Daily	Grab	
Phosphorus, Total		mg/L	Monthly	Grab	
Halogen, Total Residual as Cl <sub>2</sub>	Daily Max	38 ug/L	Monthly	Grab	

#### 3.3.1 Changes from Previous Permit

Monitoring frequency for total residual halogen reduced from twice per monthly to monthly. Data indicates consistent compliance. Minimal monitoring is still necessary because of the use of biocides to treat the intake water.

### 3.3.2 Explanation of Limits and Monitoring Requirements

#### Water Quality Based Limits and WET Requirements and Disinfection (if applicable)

Refer to the attached March 11, 2003 memo containing the water quality based effluent limits.

#### Categorical Limits

Not Applicable

### 3.4 Sample Point Number: 601- GRANDMOTHER DAM D.O.

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Dissolved Oxygen	Daily Min	5.36 mg/L	Daily	Continuous	May

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Average River					
Dissolved Oxygen Average River	Daily Min	5.54 mg/L	Daily	Continuous	June
Dissolved Oxygen Average River	Daily Min	5.76 mg/L	Daily	Continuous	July and August
Dissolved Oxygen Average River	Daily Min	5.2 mg/L	Daily	Continuous	September
Dissolved Oxygen Average River	Daily Min	5.1 mg/L	Daily	Continuous	October

### 3.4.1 Changes from Previous Permit

None

### 3.4.2 Explanation of Limits and Monitoring Requirements

Instream dissolved oxygen monitoring, 7 miles downstream at Grand Mother Dam, is an alternative for PCA to comply with the BOD<sub>5</sub> wasteload allocation table during the allocation period of May through October. This monitoring was intended to detect the BOD<sub>5</sub> oxygen sag in the river from PCA's discharge. If the dissolved oxygen limits in Table 3.4 are met, PCA may discharge independent of the BOD<sub>5</sub> allocation limits. However, the discharge must always comply with the categorical limits as shown in Table 3.2. If the discharge is within the BOD<sub>5</sub> wasteload allocation table, the dissolved oxygen limit is not in effect and concentrations below the limit wouldn't be a violation.

## 3.5 Sample Point Number: 602- WATER QUALITY INFO FOR WLA

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
WLA Previous Day River Flow		cfs	Daily	Continuous	
WLA Previous Day River Temp		deg C	Daily	Continuous	
WLA BOD <sub>5</sub> Value		lbs/day	Daily	Calculated	
WLA 5 Day Average Table Value		lbs/day	Daily	Calculated	
WLA BOD <sub>5</sub> Discharged		lbs/day	Daily	Calculated	

### 3.5.1 Changes from Previous Permit

None.

### 3.5.2 Explanation of Limits and Monitoring Requirements

The information in Table 3.5 is used for determining the allowable BOD<sub>5</sub> value in the wasteload allocation table contained in Footnote 1.2.5.1. Compliance of the BOD<sub>5</sub> mass discharged is determined by comparing it with either the one day table value or 5 day average table value.

PCA's discharge is into Segment A of the Wisconsin River, which is wasteload allocated to protect the 5 mg/L dissolved oxygen water quality standard. Seasonal water quality limitations for BOD<sub>5</sub> are in effect May through October. The wasteload allocation BOD<sub>5</sub> limits, which are more stringent than the categorical, are derived from a matrix table using the variables of river temperature and flow. A negotiated table (agreed to at least three permits ago) was used instead of the allocation tables in ch. NR 212, Wis. Adm. Code, because the wasteload allocation for Segment A was known to be in error. Monitoring data shows the river dissolved oxygen standard isn't always met, so the Department was remodeling Segment A. However, the process was discontinued, so the BOD<sub>5</sub> wasteload allocation table and dissolved oxygen limits remain unchanged. The point source dischargers are not believed to be the cause of dissolved oxygen problems. Sediment oxygen demand appears to be the cause.

### 3.6 Sample Point Number: 603- WATER INTAKE MERCURY

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Mercury, Total Recoverable		ng/L	Monthly	Grab	Refer to Footnotes 1.2.6.1 and 1.2.6.2.

#### 3.6.1 Changes from Previous Permit

This is a new sampling point for compliance with the new mercury rule. Intake monitoring will determine the background concentration of mercury in the Wisconsin River at Tomahawk, and will be used to determine if PCA's effluent contains a net discharge of mercury. This monitoring is not required. But, if the permittee doesn't perform testing of intake samples, the Department may assume the mercury concentration of the intake water is 1.3 ng/L (the lowest water quality criterion).

#### 3.6.2 Explanation of Limits and Monitoring Requirements

##### Water Quality Based Limits and WET Requirements and Disinfection (if applicable)

No effluent limits are included. The need for a water quality based effluent limit or alternative mercury effluent limitation will be determined during the next permit reissuance. This permit will be used to gather data to determine the reasonable potential to exceed mercury limitations.

## 4 Groundwater – Proposed Monitoring and Limitations

### 4.1 Groundwater Monitoring System for Old Lagoon NR 213 Evaluation

**Location of Monitoring System:** 4 wells on north bank of Spirit River, background well by Pride Dam

**Wells to be Monitored:** Well 4A, Well 6A, Well 8, Well 14, Well 14A (corresponds to DNR well number 804, 806, 810, 821, and 822 respectively)

**Well Used To Calculate PALs:** Well 8 (810)

**Enforcement Standard Wells:** Well 14 and Well 14A



PARAMETER	UNITS	PREVENTIVE ACTION LIMIT	ENFORCEMENT STANDARD	FREQUENCY
Depth To Groundwater	feet	*****	N/A	Annual
Groundwater Elevation	feet MSL	*****	N/A	Annual
Nitrogen, Nitrite + Nitrate Dissolved	mg/L	2.0	10	Annual
Color	Color	7.5	15	Annual
pH Field	su	7.76	N/A	Annual
Specific Conductance Field	umhos/cm	309	N/A	Annual
Nitrogen, Ammonia Dissolved	mg/L	2.3	N/A	Annual
Nitrogen, Organic Dissolved	mg/L	2.4	N/A	Annual
Solids, Total Dissolved	mg/L	291	N/A	Annual
Alkalinity, Total as CaCO <sub>3</sub> Dissolved	mg/L	146	N/A	Annual
Sodium Dissolved	mg/L	16	N/A	Annual
BOD <sub>5</sub> Dissolved	mg/L	27	N/A	Annual
COD, Filtered	mg/L	43	N/A	Annual

#### 4.1.1 Changes from Previous Permit:

Background water quality from Well 8 (810) was used to re-calculate PALs. Because of improved water quality in the background well, most of the PALs were reduced (ammonia remained the same). Chloride concentrations are consistently very low, so this parameter was discontinued. The monitoring frequency was reduced from once every six months to once annually. Annual monitoring will still provide data for long term trend analysis. PCA requested the elimination of all groundwater monitoring.

#### 4.1.2 Explanation of Limits and Monitoring Requirements

Continued groundwater monitoring is recommended for the permit reissuance. The abandonment and sludge removal from the old leaking earthen wastewater lagoons removed the source of the contamination, but it may take many years for significant groundwater quality improvements to be realized. Preventive action limits were exceeded in all of the downgradient wells for the indicator parameters alkalinity, COD, conductivity, sodium, total dissolved solids; and in one well for ammonia. Enforcement standards were exceeded in all the downgradient wells for the public welfare parameter color. Compared to the groundwater quality data from 1996 and 1997, there has been an overall slightly better quality with generally some decrease in the concentrations of the parameters monitored. For BOD<sub>5</sub>, some results were reported between 1 and 2 mg/L, but the level of detection for BOD<sub>5</sub> is 2.0 mg/L, so the accuracy of the data below this is in question (not a compliance issue since the concentration is so low).

## 5 Land Application - Proposed Monitoring and Limitations

Sludge Description						
Sample Point	Sludge Class	Sludge Type	Pathogen Reduction Method	Vector Attraction Method	Reuse Option	Amount Reused/Disposed
010	A	Cake	Enteric Virus and Viable Helminth Ova	Bench-scale Volatile Solids Reduction	Land Application and Public Distribution	9000 Dry Tons per Year

Sludge Description						
Sample Point	Sludge Class	Sludge Type	Pathogen Reduction Method	Vector Attraction Method	Reuse Option	Amount Reused/Disposed
013	B	Liquid	N/A	N/A	Land Application	1,000,000 gallons per Year

## 5.1 Sample Point Number: 010- LAND APPLICATION SLUDGE CAKE

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
pH Field		su	Quarterly	Composite	
Chloride		mg/kg	Quarterly	Composite	
Solids, Total		Percent	Quarterly	Composite	
Nitrogen, Total Kjeldahl		mg/kg	Quarterly	Composite	
Nitrogen, Ammonium (NH <sub>4</sub> -N) Total		mg/kg	Quarterly	Composite	
Nitrogen, Nitrite + Nitrate Total		mg/kg	Quarterly	Composite	
Phosphorus, Total		mg/kg	Quarterly	Composite	
Potassium, Total Recoverable		mg/kg	Quarterly	Composite	
Arsenic Dry Wt	High Quality	41 mg/kg	Quarterly	Composite	
Cadmium Dry Wt	High Quality	39 mg/kg	Quarterly	Composite	
Copper Dry Wt	High Quality	1,500 mg/kg	Quarterly	Composite	
Lead Dry Wt	High Quality	300 mg/kg	Quarterly	Composite	
Mercury Dry Wt	High Quality	17 mg/kg	Quarterly	Composite	
Molybdenum Dry Wt	High Quality	18 mg/kg	Quarterly	Composite	
Nickel Dry Wt	High Quality	420 mg/kg	Quarterly	Composite	
Selenium Dry Wt	High Quality	100 mg/kg	Quarterly	Composite	
Zinc Dry Wt	High Quality	2,800 mg/kg	Quarterly	Composite	
PCB Total Dry Wt	High Quality	1.0 mg/kg	Annual	Composite	
Pathogen Control - Enteric Virus and Viable Helminth Ova	Class A	1 PFU/4g TS and 1/4g TS	Once	Composite	Refer to Footnote 3.2.1.8.
Fecal Coliform or Salmonella	Class A	1000 MPN/g TS or 3 MPN/4g TS	Quarterly	Composite	Refer to Footnote 3.2.1.8.

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Vector Attraction	Class A	<17% VS Reduction	Once	Composite	Refer to Footnote 3.2.1.9.
Priority Pollutant Scan			Once	Composite	Refer to Footnote 3.2.1.10.
Daily Log - Site No., Acres Applied, and Application Rate	Loading	100 Dry Tons per Acre	Daily	Log	
Annual Report - Total Amount, Available Nitrogen, Chloride	Loading	Nitrogen 100 Chloride 170 lbs/acre/year	Annually	Summary	

### 5.1.1 Changes from Previous Permit:

The sample type was changed from grab to composite to reflect the appropriate sample collection method. The reporting units for Total Kjeldahl Nitrogen, Ammonium Nitrogen, Phosphorus, and Potassium was changed from % to mg/Kg are units that are more appropriate because the percentages are very low. Reduced the sampling frequency from once every two months to quarterly because data results are consistent and well below the high quality limits. Added monitoring for nitrate + nitrite. The sludge land application management plan calculates the plant available nitrogen with the inclusion of 100% of the nitrate + nitrite, but it currently isn't being monitored (contribution is expected to be minor). Increased PCB sampling from once during the permit term to annually, and added a 1.0 mg/Kg limit for Total PCBs that becomes effective upon promulgation of new pending rules for PCBs. There is a potential for the presence of PCBs because of the use of recycled paper in the pulp. PCA needs to assure sludge quality complies with the PCB limits because it's publicly distributed.

A new footnote regarding the priority pollutant scan, requires that all 17 of the dioxin and furan congeners be analyzed, not just the 2,3,7,8-TCDD and 2,3,7,8-TCDF. The more detailed analysis allows for a better evaluation of toxicity.

### 5.1.2 Explanation of Limits and Monitoring Requirements

PCA's dewatered sludge cake is exceptional like in quality and is made available for public distribution. To regulate the sludge, the municipal requirements from ch. NR 204, Wis. Adm. Code are used. It contains the monitoring and limits for Class A sludge and the high quality standards that are applicable for sludge for it to be permitted to be publicly distributed.

## 5.2 Sample Point Number: 013- LAND APPLICATION LIQUID SLUDGE

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
pH Field		su	Annual	Composite	
Chloride		mg/kg	Annual	Composite	
Solids, Total		Percent	Daily	Composite	

Monitoring Requirements and Limitations					
Parameter	Limit Type	Limit and Units	Sample Frequency	Sample Type	Notes
Nitrogen, Total Kjeldahl		mg/kg	Annual	Composite	
Nitrogen, Ammonium (NH <sub>4</sub> -N) Total		mg/kg	Annual	Composite	
Nitrogen, Nitrite + Nitrate Total		mg/kg	Annual	Composite	
Phosphorus, Total		mg/kg	Annual	Composite	
Potassium, Total Recoverable		mg/kg	Annual	Composite	
Daily Log - Site No., Acres Applied, and Application Rate	Loading	13,500 (6800 frozen) Gallons per Acre	Daily	Log	
Annual Report - Total Amount, Available Nitrogen, Chloride	Loading	Chloride 170 lbs/acre/year	Annual	Summary	

### 5.2.1 Changes from Previous Permit:

This is a new outfall. PCA has experienced treatment system upsets of the biosolids stability, usually in the early spring and late fall during temperature transitions. The upsets may be attributed to bacterial population shifts between thermophilic and mesophilic. The solids upsets has necessitated the land application of liquid sludge (total solids around 4%) from either the anaerobic basin or final clarifiers, in an effort to prevent total suspended solids violations in the process wastewater discharged at Outfall 003.

### 5.2.2 Explanation of Limits and Monitoring Requirements

A new outfall was created so the liquid sludge could be regulated differently than the cake sludge at Outfall 010. The liquid sludge will all be land applied and will be monitored and regulated in accordance with ch. NR 214, Wis. Adm. Code. Monitoring is unnecessary for the exceptional quality parameters or Class A sludge criteria, since it will not be available for public distribution. The previous monitoring of the liquid sludge for these parameters indicated they were at low concentrations. Therefore, there is no concern for any cumulative metal loading, especially since the liquid land application is not a regular practice, but will only occur when there are treatment plant upsets. Also, the liquid sludge is similar in characteristics to the cake sludge, so the general quality of the liquid sludge can be extrapolated from the cake sludge monitoring. The limiting factor for land application is hydraulic loading. An estimated 1 million gallons per year may be land applied.

## 6 Compliance Schedules

### 6.1 Land Application

The sludge regulated in the Land Application section of the permit is subject to the following requirements:

Required Action	Date Due
Analyze the sludge cake for enteric virus and viable helminth ova for pathogen control.	12/31/2007

Conduct an anaerobic bench-scale test for vector attraction on the sludge cake.	12/31/2007
Conduct a priority pollutant scan on the sludge cake (including Dioxins and Furans)	12/31/2007
Submit a revised "Residual Landspreading Management Plan" for approval.	12/31/2003

## 6.2 Mercury Pollutant Minimization Plan

The effluent regulated in the Surface Water section of the permit is subject to the following requirements:

Required Action	Date Due
Submit a Mercury Pollutant Minimization Program.	12/31/2006
Implement the Mercury Pollutant Minimization Program.	12/31/2007
Submit Annual Status Report.	12/31/2008

## 6.3 Explanation of Compliance Schedules

The land application requirements with once during the permit term monitoring for pathogen control, vector attraction, and priority pollutant scan, are included in the compliance schedule as a reminder. Because of changes in the permit that may necessitate changes to the land application management plan, a compliance schedule is included to assure this occurs.

If mercury monitoring indicates there is a reasonable potential to exceed mercury limitations, a Mercury Pollutant Minimization Plan is required. This requirement will not become effective if the Department determines mercury concentrations in the effluent is below a level of concern.

## 7 Attachments:

Substantial Compliance Determination  
Water Quality Based Effluent Limits Memo March 11, 2003  
Water Flow Schematic  
Site Map  
Alternative Phosphorus Limit Memo March 20, 2003  
Groundwater Preventive Action Limit Calculations  
Monitoring Data Summary of Effluent, Sludge Cake, and Groundwater

## 8 Proposed Expiration Date:

September 30, 2008

Prepared By:

Paul W. Luebke, P.H.  
Wastewater Specialist  
Bureau of Watershed Management

Date: September 29, 2003